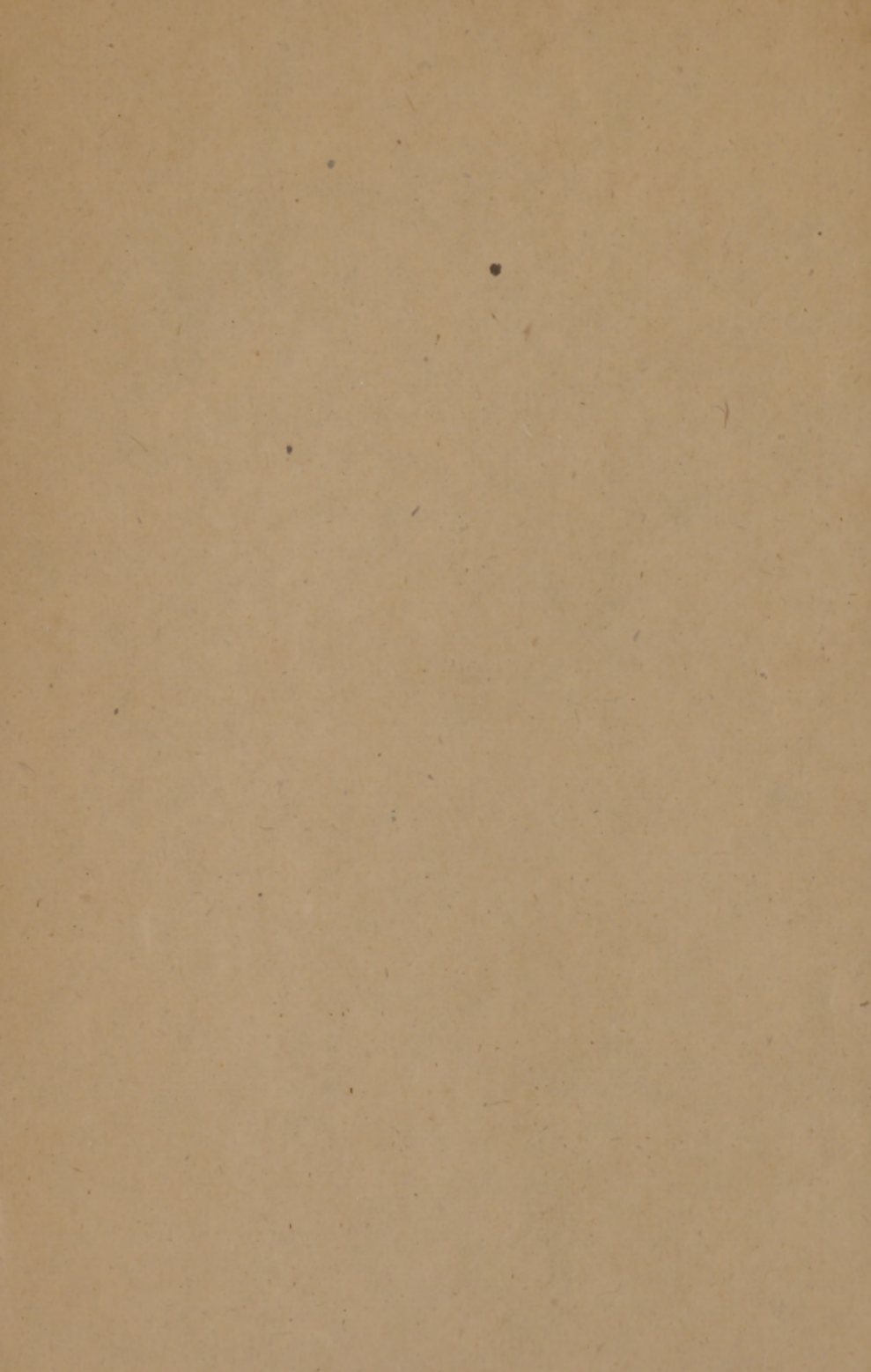


LYONS. (A.B.)





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[REPRINT FROM THE THERAPEUTIC GAZETTE, MAY, 1884, PAGE 204.]

Fellows' Hypophosphites.

BY A. B. LYONS, M. D., DETROIT, MICH

I have been frequently asked by physicians what I thought of Fellows' hypophosphites. My reply has always been: "Like other nostrums it is probably a useful medicine, but until its manufacturers see fit to publish its formula, it cannot be prescribed intelligently—and, no doubt, if the formula were published, it would be found to cover no very profound or precious secret. At all events, it would probably cost the patient no more if the medicine were dispensed on the physician's own prescription."

Such a reply, however, based on broad general principles, and applicable to all patent medicines and copyrighted medicinal preparations, does not completely satisfy the physician who has the testimony of individuals, very likely his own patients, to the beneficial effects they have experienced from the remedy, possibly after medicines prescribed by the doctor had been reported as doing no good.

The advertisement of this particular secret remedy meets one at every turn in the medical journals of America, and I never see it without feeling as a member of the medical profession, at once ashamed and indignant. Putting aside the personal sense of humiliation, I could indeed find amusement in the lofty indifference manifested therein alike to scientific precision of statement, and grammatical accuracy of expression.

The peculiar disjointed mode of printing the word "Hypo-Phos-Phites" in the heading of the advertisement prepares one for the painfully amusing incoherencies which follow. We are told, with superfluity of capitals, that the preparation contains "the essential elements to the animal organization, potash and lime." To say nothing of the awkward linking of the words, or of the antiquated chemical views which include potash and lime among the elements, we are at a loss to understand why potash and lime in preference to iron and phosphorus are singled out as essential to the animal "organization."

Iron and manganese are next named as constituents of this remedy and are characterized as "oxydizing agents." It is true that, from the facility with which it receives and parts with oxygen, iron plays an important part in the oxygenation of the blood. That manganese reinforces the action of iron as a hematic tonic, seems to be established as a fact of clinical observation, but I do not know that we are entitled from this fact to draw the conclusion that manganese is an oxidizing or even an oxygenating agent. However, we all have our favorite hypotheses in regard to the action of medicinal agents, and it is perhaps out of place to criticise too minutely those propounded by others—so long as they are not either antedeluvian or preposterous.

We are told that the preparation contains the "tonics" quinine and strychnine—but no statement is made in regard to the quantities of these tonics. What physician will take the responsibility of prescribing such a deadly "tonic" as strychnine in an unknown dose?

Finally, our shot-gun has yet another missile making up its charge, viz "Phosphorus, the vitalizing constituent." Why not devitalizing? Administered to rodents in the form of phosphorus paste, the element has anything but a "vitalizing" effect.

There is a wide-spread belief, whether with or without foundation, that phosphorus is, somehow, intimately connected with manifestations of intelligence. A few years ago Prof. Agassiz threw out the suggestion that a fish diet would be appropriate to brain workers, because fish contains so much phosphorus, and in spite of the circumstance that fish does not contain a very large proportion of phosphorus, the recommendation has become a commonplace of amateur prescribing. But intelligence is not vitality, and medical practice has never attributed to phosphorus any peculiar life-giving power. Still "vitalizing constituent" sounds well—by all means retain that in the advertisement.

The various constituents of this medicine, we are told, are "combined in the form of a syrup, with slight alkaline reaction." (sic.) In spite of the evidence afforded by litmus paper we are willing to concede the alkaline reaction, but, what of it?

The next statement is either meaningless, or else implies what is not true. It reads: "It differs in effect from all others, being pleasant to taste, acceptable to the stomach, and harmless under prolonged use." The first proposition is no doubt true. Differing essentially in composition, if we are to believe the preceding statements, from any other preparation sold under a similar name, it ought to differ widely in its effects, but the difference does not extend to the particulars specified.

Reading further, we learn that "its curative properties are largely attributable to stimulant, tonic, and nutritive qualities, whereby the various organic functions are recruited."

It is difficult to understand how the functions of an organ can be recruited. What is wanted, one would suppose, is not more functions, but more vigor in the exercise of those already assigned to each organ. It is interesting to know that in addition to stimulant, tonic and nutritive qualities, there is a reserve of unnamed medicinal virtues in the remedy which shall "largely" increase the range of its usefulness. We are glad too, to be assured that "in cases where innervating constitutional treatment is applied, and tonic treatment is desirable, this preparation will be found to act with safety and satisfaction," but we were not prepared for the startling announcement that this remedy "enters directly into the circulation with the food products." Such an anomalous behavior of a powerful medicine should score a good point in its favor, unless, indeed, it involves risk of producing its effects too suddenly.

Finally, we have a supplementary statement of the therapeutic properties of the preparation to the effect that "it exerts a double tonic effect, and influences a healthy flow of the secretions." Precisely what is the nature of this influence we are not told, but it certainly must not be omitted from consideration in attempting to form a just estimate of the value of the medicine. If only the remedy could exert also an influence over morbid conditions of the secretory apparatus, it would leave nothing to be desired.

Price per bottle of fifteen oz., containing 128 doses, \$1.50. To physicians a sample bottle will be sent, express charges prepaid, for fifty cents.

In the old fable the preposterous ears betrayed the ass, who hoped to command respect of man and beast by masquerading in a lion's skin. So in this advertisement, although found in the columns of a reputable medical journal, there lurks under a very

thin disguise something that has the unmistakable ear-marks of quackery. There is a largeness and looseness in the phraseology which is very characteristic, and it scarcely needed that last touch to make the revelation complete.

First impressions, however, are not always to be trusted, but circumstances have put it in my way to make a more intimate acquaintance with the preparation, with the result of confirming my dark forebodings. In the *Pharmaceutische Rundschau*, for Feb. 1884, I met with an analysis made by A. Gawalowski of Fellows' hypophosphites, and originally published in the *Rundschau für die Interess. die Phar.* 1884.

The composition of the syrup was stated as follows:

| | |
|---|---------|
| Water..... | 38.375 |
| Glucose and Saccharose..... | 56.600 |
| Ferrous hypophosphite..... | 0.846 |
| Sulphates of calcium and iron..... | traces. |
| Strychnine and brucine..... | 0.150 |
| Extractive (aqueous) from nux vomica..... | 4.000 |

To prepare a similar syrup one should employ, not an alcoholic, but an aqueous extract of nux vomica, like that of the *Ph. Germ.* 1872. The author believes that the imitations of this syrup that have been heretofore offered, differ from the original mainly in containing the alcoholic rather than the aqueous extract, and proposes the following formula:

| | |
|--|------|
| Syr. simp..... | 82.6 |
| Syr. ferri hypophos..... | 7.5 |
| Ext. nucis vomicæ aq., <i>Ph. Germ.</i> ,..... | 9.9 |

The analysis of Gawalowski does not agree at all with the statements that have been already quoted from Fellows' advertisement. Further, there are inconsistencies in the results reported, if the figures have been correctly transcribed, which forbid us to accept the analysis as final. If it is true that the preparation contains in each dose $\frac{1}{8}$ gr. of strychnine and brucine combined, we cannot wonder that it is an active medicinal agent. Nux vomica contains these two alkaloids generally in nearly equal proportions; at all events one third of the alkaloid may be assumed to be strychnine, making each dose of one teaspoonful equal to about one-twelfth grain of strychnine. The extract nux vomica employed must have been of very poor quality, for it must have contained less than four per cent. of alkaloids. The crude drug generally contains nearly three per cent. Further, in the proposed formula, the amount of extract nux vomica is doubled, so that one teaspoonful of the preparation will contain about $7\frac{1}{2}$ grains. * This would seem to be an excessive dose, equivalent, at the lowest estimate, to about one-third of a grain of strychnine.

My curiosity was excited to ascertain the actual facts in the case, and I accordingly made, myself, a somewhat careful examination of Fellows' "hypo-phos-phites."

I found that the contents of a bottle of the syrup measured 424 c.c. ($14\frac{1}{2}$ fluidounces). As this is said to be sufficient for 128 doses, I conclude that the dose of this medicine is $53\frac{1}{2}$ minims or one small teaspoonful. The syrup had a density of 1.305 at 15° C., (59° Fah.), was of a neutral reaction, certainly not alkaline—somewhat viscid, of a pale yellowish color, but containing a bulky dingy greenish precipitate; somewhat fluorescent in a strong light, distinctly but not disagreeably bitter, with a peculiar clinging property when taken into the mouth.

Qualitative tests showed that the preparation consists "largely" of a glucose syrup. On igniting a portion of it, there remained an ash amounting to somewhat less than one per

cent. of the syrup, showing that its total inorganic constituents do not exceed 4.5 grains to the fluid ounce.

The syrup contains .0615 per cent. of alkaloids, consisting of a mixture of quinine and strychnine. Brucine is absent, showing that in this particular sample of the "hypophosphites" extract of nux vomica had not been used. I did not attempt a complete separation of the alkaloids, but convinced myself that at least two-thirds of the entire amount was quinine. The ash contains lime, potash, iron and manganese; the total amount was so small that I was content to rest satisfied with a qualitative examination merely.

These bases were present chiefly in the form of hypophosphites, with traces of sulphates. By converting the phosphorus into phosphoric acid, precipitating with magnesia mixture, in presence of tartaric acid, and titrating the precipitate, dissolved in acetic acid, with uranic acetate, I determined the phosphorus, which, in the form of hypophosphorous acid was sufficient in amount nearly to neutralize all the bases present.

From these data it is easy to construct a formula which shall practically reproduce Fellows' hypo-phosphites. The preparation must be made from a syrup containing a large proportion of glucose—not because glucose is cheap, but in order that the preparation may "enter directly into the circulation with the food products." If made with a cane-sugar syrup this will have to undergo a process of digestion previous to the absorption of the saccharine constituent, which, by the way, ought to have been enumerated among the nutritive constituents of the syrup. A preparation substantially identical with that of Fellows will contain as its medicinal ingredients, besides glucose in each fluidounce:

| | | |
|----------------------------|-------|----------|
| Calcium hypophosphite..... | | 1 grain. |
| Potassium " | | 1½ " |
| Iron " | | 1½ " |
| Manganese " | | 1 " |
| Quinine " | | 7-16 " |
| Strychnine " | | 1-16 " |

The addition of a few drops of acid to the preparation, will make a clear syrup, instead of a turbid unsightly mixture like the original, but the product will be more decidedly bitter, and it may be as well, perhaps, to omit the acid.

If a malt extract rich in diastase were employed in place of the glucose syrup, no doubt a preparation of much superior efficacy would result, and it seems as though an increase in the proportion of the hypophosphites would increase its activity.

It is easy to figure out the cost of a syrup made in accordance with the above outlined formula, and the result of this little mathematical calculation would furnish food for reflection.

There is nothing in the mixture, and there does not claim to be anything, which physicians do not prescribe every day. The physician raises a question of ethics at once, if his neighbor practitioner claims to possess a secret of great value, charging proportionately for his services, when in fact there are no secrets of any value in the practice of medicine. If compelled to divulge his secrets, the quack invariably proves to be a pretender, and what is true in medical practice is true in pharmacy. Charlatany in the compounding of medicines is not more honorable than in the prescribing of them. If physicians can only keep distinctly before them this axiomatic principle, they will save themselves from endless annoyance at the hands of vendors of medicinal compounds, "protected" by illegitimate trade-marks, — the modern, high-toned substitute for the old-fashioned, vulgar patent medicines. No reputable physician, to-day, will write a prescription for Jayne's expectorant, or Warner's safe kidney and liver cure. But in principle it is not a whit better to order Horsford's acid phosphates, or Battle's bromidia. In place

of the former, he may write liq. acidi phosphorici, and thus throw the weight of his influence in favor of legitimate pharmacy. For the latter let him prescribe such a combination of sedative agents as he believes will suit the case in hand—unless, indeed, he have so little confidence in his own skill that he prefers to throw on some other unknown person the responsibility which should be his own.

In the present instance, I would propose that in place of the nostrum "Fellow's hypophosphites," the physician prescribe syrup hypophosphites comp, with quin., strych. and manganese, meaning by this a syrup containing the medicinal constituents named above. To prepare such a syrup, the following working formula may be employed:

| | |
|-------------------------------|----------|
| Glucose..... | 1 lb. |
| Simple syrup | 1 pt. |
| Hypophosphite calcium..... | 128 grs. |
| Hypophosphite potassium | 48 grs. |
| Sulphate iron..... | 48 grs. |
| Sulphate manganese..... | 32 grs. |
| Sulphate quinine | 14 grs. |
| Sulphate strychnine..... | 2 grs. |
| Water, q. s. | |

Dissolve the calcium and potassium hypophosphites in two fluid ounces of warm water. Add to one ounce of water three fluid drachms of the syrup and dissolve in the mixture by the aid of heat, the remainder of the salts. Mix the solutions and set by a few hours, covered, to deposit the sulphate of calcium which is formed. Filter into a bottle containing the remainder of the syrup, wash the residue with an ounce of boiling water, mix filtrate and washings with the syrup; dissolve the glucose in the mixture, and add through the filter enough water to make two pints. The formula would be improved by substituting for the glucose a refined extract of malt like that prepared by Gehe, in Germany.

The proportion of the medicinal ingredients in the syrup, it is true, is small; I shall not warrant it to perform miracles of cure. It is simply offered as a substitute for Fellows' hypo-phosphites; whatever therapeutic efficiency that nostrum has, we may count upon obtaining equally from this syrup.

[COMMUNICATION IN THE THERAPEUTIC GAZETTE, MAY, 1884, PAGE 216.]

Fellows' Hypophosphites.

I have been thinking for some time of calling attention to Fellows' Compound Syrup of Hypophosphites, and, if it be not asking too much, to request you to publish an analysis of the same.

Other compounds that are put in the market in a similar way that it is, have been analyzed, and as this is one that has an extensive sale, both to consumers direct as well as through the profession, I have wondered why it has thus far escaped such notice.

In this region it has considerable patronage, and many physicians are convinced that it is not without merits, though probably no well informed physician believes it contains the amount of hypophosphites that is claimed for it.

For my own part, I am a believer in the beneficial action of small doses of active medicines, especially when used as tonics and restoratives; and I am inclined to believe that aside from the "booming" this medicine has received by "drummers" and advertising, that its success lies in the amount of strychnia which it contains, probably supplemented somewhat by small amounts of quinine and iron which are also incorporated in it.

Now, as this is one of the "protected" medicines, and is sold at a most exorbitant price, it would be doing a great good to the trade and to the profession to properly inform us about it.

In fact, it would be interesting to understand just exactly why it is that we have so many "protected" medicines, and it seems to me that men engaged in honorable and (morally) legitimate pharmacy, could serve "their day and generation" in no better way than coming to the front with plain, undeniable facts concerning them.

M. R. MORDEN, M. D.

ADRIAN, MICHIGAN.

[EDITORIAL IN THE THERAPEUTIC GAZETTE, MAY, 1884, PAGE 219.]

Fellows' Hypo-phos-phites and Other Preparations of that Kidney.

We have given in another department of this issue, and in response to numerous inquiries of the nature of those published, some facts bearing on the proprietary compound extensively advertised under the name of Fellows' Hypo-phos-phites. Our readers will draw from these their own conclusions. This nostrum differs in no essential particular, as regards its ethical relations, from the multitude of trade-marked preparations, which, in spite of their pseudo-scientific and absurd claims, have been made sources of profitable pecuniary return to their manufacturers, directly and indirectly through the patronage of medical practitioners. We have, in season, and sometimes, perhaps, out of

season, advised the medical profession of the gross injustice it does, not only the public, but also itself, in becoming the pliant instrument in the hands of astute non-professional vendors, for introducing their wares into public confidence. The evidence that this injustice is beginning to be recognized is accumulating. Thinking men in the profession are becoming aroused to the necessity of withdrawing their countenance from the specious frauds which they have been induced to patronize, and we have earnest that ere many years have passed, an appreciation of the proper relations which the practitioners of medicine bear to their co-workers in a different part of the same field, viz., the pharmacists, will prevail among the great body of reputable physicians. The dawn of that hoped-for era in the history of medicine in this country, will be hastened by an appreciation of the fact that illegitimate pharmacy possesses no open sesame into the secrets of nature, that it may recover from her store-houses aught which is denied the conscientious scientist, who is prompted to research through desire to enrich his humane profession, rather than to amass wealth through imposition on suffering humanity.

We frequently hear it urged in extenuation of the patent and the copyrighted name, as applied to medicinal compounds, that "when a man invents a good thing he should be allowed to reap the benefits thereof; refuse to protect the inventor and you paralyze progress." We are not disposed to dispute the correctness of this position, and, loyal as we are to the Code of Ethics of our profession, we should have much sympathy with the inventor of a valuable medicinal compound, or the discoverer of a drug hitherto unknown for therapeutic value, should he seek some means whereby he might reap returns for his investment of scientific knowledge, or the time, labor and capital expended in the invention or discovery. But what medicinal compound is there now on the market whose "invention" or "discovery" has involved the devotion of any scientific knowledge, or the utilization of any facts which are not the common property of the profession? Nay, more, what nostrum is there, the formula for which has not been deliberately filched from the medical profession? The prescription files in drug stores are the source whence we have the vast majority of our cure-alls. What knowledge is there, for instance, required in the preparation of Bromidia, or Iodia, or Scott's Emulsion, or Pancreo-Pepsin, or Papine, or Acid Phosphates, *et id genus omne*, that the manufacturers of these preparations should have such right thereto, as enables them to demand of the public exorbitant prices for them?

Our colleague has done the profession good service, through his analysis of Fellows' Hypophosphites, published in his article in our present issue, and in his presentation of a formula for a preparation of the same nature, but more in conformity to the rules of scientific pharmacy and rational therapeutics. Such a preparation can be made by the competent retail pharmacist, or the manufacturing chemist, who, after allowing for a legitimate margin of profit, can sell it at a price much reduced from that asked for the proprietary compound. We would suggest the name 'Hematic Hypophosphites*' for such a preparation. It is at once euphonious and convenient, and suggestive of the ingredients entering into it. It behooves physicians to prescribe such substitutions as this for the nostrums, for the introduction of which to the public they are sought to be made the cat's-paws. Let them eschew every protected or proprietary preparation for which their patronage is solicited, and it will not be long before the semblance of the distinction between the patent medicines, whose virtues are blazoned forth in the posters on fences and dead-walls, and the semi-respectable, pseudo-scientific, trade-marked nostrums which are advertised in medical journals, will be effaced. When that time comes, pharmacists and physicians will work together with greater harmony, and to greater mutual profit.

*See last page of this circular.

HEMATIC HYPOPHOSPHITES.

FORMULA.

Based upon Analysis of Fellows' Hypo-phosphites:

| | |
|--------------------------------|-----------------|
| Glucose and maltose..... | 7½ Troy ounces. |
| Calcium hypophosphite..... | 16 grains. |
| Potassium hypophosphite..... | 24 grains. |
| Iron hypophosphite..... | 24 grains. |
| Manganese hypophosphite..... | 16 grains. |
| Quinine hypophosphite..... | 7 grains. |
| Strychnine hypophosphite..... | 1 grain. |
| Simple syrup..... | 8 fluidounces. |
| Water, q. s. to make one pint. | |

This preparation might be called with propriety syrup hypophosphites comp. with iron, manganese, quinine and strychnine, but physicians may reasonably object to such a sesquipedalian designation, and besides there is already in the market a preparation differing essentially from this in composition which bears a similar name.*

We are aware that such a name is open to criticism, but it has the merit of brevity and it is in character with the preparation itself, which makes no claims as a scientific combination of remedial agents. It is simply a substitute for the nostrum extensively advertised under the name of Fellows' hypo-phosphites, and all that we claim for it is that it does faithfully reproduce in all essential particulars that preparation.

Physicians have frequently asked us whether we could not furnish a substitute for Fellows' hypophosphites which they could prescribe intelligently. An analysis of that article recently published (*Therapeutic Gazette*, May, 1884) enables us to do this. We have even ventured to improve upon the original, following the suggestion offered in the article alluded to, by substituting a decolorized extract of malt for a portion of the glucose in the original. The only merit possessed by the glucose is its cheapness. Malt extract on the other hand has a well recognized value in promoting nutrition; hence we may fairly claim for our product superiority over that which it is intended to substitute.

It will be remarked that the medicinal constituents of the syrup are present in very small proportion. We prepare syrups which contain a much larger quantity of the same medicinal agents, which the physician may prescribe where he believes that large doses are indicated. If, however, he has obtained beneficial results in the use of Fellows' hypophosphites, or desires to test the value of that highly lauded combination, he will find in the hematic hypophosphites a preparation practically identical with that which bears the autograph of James I. Fellows.

In the debilitated conditions in which the preparations of the hypophosphites are usually prescribed, minute doses often exert a more favorable influence than the full doses which the physician is tempted to prescribe. In cases of nervous exhaustion especially recuperation is necessarily slow, and medication to be successful must be based on the maxim *festina lente*.

The combination of remedies is one adapted to a great variety of diseased conditions. It is likely to prove useful wherever there is debility or depraved nutrition, but it is especially appropriate in cases of anemia and nervous prostration, in consumption, and in all scrofulous and tubercular affections.

Physicians will, however, be able better than we to recognize the rational indications for its use.

* In an editorial article in the *Therapeutic Gazette*, May, 1884, the name "Hematic Hypophosphites" is suggested. See page 7 of this circular.

PARKE, DAVIS & CO.,

Manufacturing Chemists,

NEW YORK BRANCH:
60 Maiden Lane,
21 Liberty Street.

DETROIT, MICH.

